Volume 2 - Issue 1 (Winter 1999)

Kentucky GEO-REFERENCE

Geographic Information Advisory Council - GIAC

"We realize that we cannot convince everybody we deal with to see things our way. Hopefully as we move forward in our coordination efforts, creating and providing the Statewide Digital Basemap, providing education and training, and creating sound policy for the Council, we will all work in spirit of cooperation and professionalism."

Stephen N. Dooley, Chair
Kentucky Geographic Information Advisory
Council(GIAC)

IN THIS ISSUE

Council News
Stephen N. Dooley, Chair
Kentucky Geographic Information Advisory Council (GIAC)

The new year will be an exciting one for the council and KYOGIS. We will be dealing with several important and controversial issues. We realize that we cannot convince everybody we deal with to see things our way. But, as we move forward in our coordination efforts, creating and providing the State-wide Digital Basemap, providing education and training, and creating sound policy for the council, we will all work in spirit of cooperation and professionalism.

Major Initiatives
The major initiatives of the council this quarter are to establish policy which addresses dissemination of the basemap data, and to figure out a funding model for the operation and maintenance of the basemap. If you are interested in this effort, please contact Dr. Don Haney, chair of the Finance Committee at (606) 257-5500 or by email at: haney@kgs.mm.uky.edu Another initiative is to study current digital elevation model (DEM) creation methodology and make recommendations to KYOGIS regarding how best to create a seamless DEM of the Commonwealth for the statewide digital basemap. If you are interested in participating in the formulation of policy recommendations or the research and recommendations regarding technical aspects of the basemap, please contact Bruce Seigle, chair of the Standards and Policy Committee at (502) 540-6234 or by email at: seigle@lojic.org He will get you in touch with the chair of a technical workgroup.

1999 Geographic Information Advisory Council
With the infusion of new members into the council there will surely be exciting new initiatives as well as new committee assignments. The council would welcome participation from the GIS community. Please contact Steve Dooley, the chair of the council or Susan Carson Lambert at KYOGIS, if you are interested in being involved with one of the committees or technical workgroups. Listed below are the committees and technical workgroups.

There are five committees:
· Executive Committee (Steve Dooley, chair)
· Standards and Policy (Bruce Seigle, chair)
· Education and Training (unchaired)
· Strategic Planning, (Judge Larry Whitaker, chair)
· Finance (Dr. Don Haney, chair)

There are eight technical workgroups under the Standards and Policy Committe:
· Basemap Issues (Ken Bates,chair)

NOTE: Our newsletter has been re-named to "Kentucky GEO-REFERENCE" . After publishing the first issue, it was brought to our attention that there was another newsletter published since 1995 by the University of Kentucky College of Agriculture called "*Kentucky GIS News*". Please kindly accept our apologies.

EDUCATION PAYS

- Data Dissemination (Brenda Workman, chair)
- Geodesy (Perry Semones, chair)
- Hydrogrphy (Lee Colten,chair)
- Remotely Sensed data (unchaired)
- Soils (Steve Crabtree and Bill Craddock, co-chairs)
- Transportation (Danny Gortney, Bill Jones, and Ron Willhoit, co-chairs)
- Metadata (Bob Forbes, chair)

New Members
There are 25 members of the GIAC. Thirteen of them represent executive branch cabinets, and one is a legislative liaison. Eleven of them represent professional organizations and those appointments expired September 1, 1998. The Executive Committee, KYOGIS and the Office of the CIO worked closely with the Governor's Appointment Secretary, Bill Beam, and Hollis Rosenstein to fill the appointed positions. The appointed council members serving a four year term are:

Reappointed Professional Organization Council Members:
Bruce Seigle - Kentucky Professional Engineers
Judge Larry Whitaker - Kentucky Association of Counties
Dan Carey - Board of Professional Geologists
Mark Vogt - Kentucky Association of Counties
Dr. Don Haney – Kentucky Geological Survey
Bill Bowdy – American Association of Planners

New Professional Organization Council Members:
Jerry Deaton - Kentucky League of Cities
Kathy Schlegel – Kentucky Chamber of Commerce
Ray Leigh – Kentucky Association of Professional Surveyors
Dan Bozarth – Kentucky Area Development Districts
Dr. Bill Martin – Kentucky Council on Post Secondary Education
William Ray – Kentucky League of Cities

The Council members representing Executive Branch Cabinets are:
Steve Dooley -- Finance and Administration Cabinet
Jim Ramesey -- Transportation Cabinet
Brenda Workman – Cabinet for Economic Development
Jeff Miracle – Deptartment of Local Government
Sgt. John Carrico – Justice Cabinet
Jules Delambre – Cabinet for Families & Children
Scott Willett – Dept. of Agriculture
John Penfield – Natural Resourses and Environmental Protection Cabinet
Lt. John Heltzel – Military Affairs
Jim Swain – Legislative Liaison

New Cabinet Representatives:
Linda Pittenger – Kentucky Dept of Education
Nick Kearney – Revenue Cabinet
Ruth Rowles – Public Protection Cabinet
Tourism Cabinet seat is empty

State and Local Government NASA Research Announcement Slated for Summer of 1999

The National States Geographic Information Advisory Council is working with NASA to help define an upcoming NASA research announcement. The contact with NSGIC is Bill Burgess with the Maryland Department for Natural Resources, he can be reached at: wburgess@dnr.state.md.us or by phone at 410-260-8755

KYOGIS met with NASA program managers in Washington recently to discuss the upcoming research announcement for state and local government use of NASA data products. In order for Kentucky to answer the grant announcement we will be bringing together a group to brainstorm on how we can best

take advantage of the data NASA produces in solving Kentucky Problems. Some issues that will Kentucky will be facing in the next few years that may be researched by using remotely sensed data are:

- Defining natural resource interdependencies for system management

- Defining human economic/quality of life systems

- Blending historic human boundaries with watersheds and redefining institutional structures to support sustainable systems

- How difficult it will be for Kentucky

to transition from small farms & traditional resource removal economies to something different

- We are harvesting more wood than ever in history – how that interacts with the Forest Conservation act and the difficulties we have quantifying and qualifying our forest resources without a comprehensive forest inventory.

- Our tobacco/small farm crisis and the advent of large contained animal feeding operations and how we can best manage these issues by using GIS and remotely sensed data

- Electric Utility Restructuring –

Kentucky has the lowest rates in the Country so there will be a boom in Electric production or 'merchant plants' – this will have a big impact on water resources and residual waste disposal.

The nature of the research announcement is set out below:

State and Local Government Research Announcement
-NASA periodically issues research announcements known as NRA's

-The NRA's can be thought of as grant opportunities

-NASA will work with NSGIC to issue an NRA specifically directed to state and local governments in 1999

Proposed Research Topics
-NASA wants input prior to the issuance of the NRA on the theme areas that are of most interest to state and local governments.

·You can direct any comments to Bill Burgess of the Maryland DNR before March 31, 1999

·Comments are preferred by E-mail

at wburgess@dnr.state.md.us or by phone at 410-260-8755
NASA will prefer to see CONSORTIUMS
- The ideal consortium will have components from federal, regional, state and local government working with the private sector and academia

- Regional or multi-state applicants will be encouraged

Technologies
- NASA is interested in promoting the use of any technology that is associated with spacecraft or aircraft that is based on previous or future NASA research

- The technology may already have been transferred to the Private Sector

- The technology can be in use by other federal agencies

NASA's preferences
- Include an outreach and education component in your proposal to extend the awareness of your research

- Prefer new technologies, proof-of-

concept, pilot projects and test & validation projects

- Possibly just show a new cost/benefit associated with older technologies previously thought to not be cost effective

What should you do now?
- Don't wait until the NRA is issued to decide your topic and pull your consortium together

- Develop a flexible plan with multiple options that can be responsive to the NRA

- Stay in touch with a NSGIC member to keep informed

- Check NASA's Research Announcement web page at www.earth.nasa.gov/nra/index.html

Please contact Susan Carson Lambert if you are interested in becoming involved with preparation of the Kentucky grant proposal for the upcoming NASA Research Announcement. Susan can be reached at (502) 573-1450 or by email at susan.lambert@mail.state.ky.us

ESRI Awards $550,000 State and Local Government GIS Startup Grant to Kentucky State Government Consortium

State and Local Government Grant
 Kentucky's 15 Area Development Districts (ADDs), the State Cabinet for Economic Development (KYCED), the Office of GIS (KYOGIS), and the Kentucky Department for Local Government (KYDLG) formed a consortium and applied for a grant from ESRI to provide uniform GIS software and data to all the ADDs. In March ESRI presented the award of the grant to the consortium in Frankfort. The ESRI Local Government Start-up Grant Program was established to

provide assistance to local government agencies with the establishment of organization wide GIS projects. Priority is given to organizations that do one or more of the following: demonstrate collaborative efforts with multiple departments, projects that promote public access to GIS databases, and projects that communicate innovative government through the use of GIS.

Training Provided
 The $550,000 grant will give each ADD about $27,000 worth of software and data. The Cabinet for Economic Development will provide a week-long Introduction to ARC/INFO class for each ADD and the OGIS will be providing a two day ArcView desktop mapping class as well as a three day Spatial Analyst class. The classes will be taught at the State Information Systems training labs in Frankfort.

Economic Development's Partner
The Cabinet for Economic Development will cooperate with the ADDs to create an online GIS-based Economic Development Information System for Kentucky (KYEDIS). The KYEDIS will take advantage of the Statewide Digital Basemap currently in development by the OGIS. This is unique opportunity for the ADDs to be in on the ground-floor and influence the statewide KYEDIS now being planned and developed by KYCED.

Jim Navolio, KY Cabinet for Economic Development

ADD's Partner
The ADDs have the opportunity to partner with the KYCED and KYOGIS to share local data that they routinely collect as part of their business they can also have computer access to state and other local GIS and its associated economic data, maps and interactive applications. The system will allow ADDS to produce their own high quality reports, maps and graphs.

Department for Local Government Partner
The ADDs are also working with the Department for Local Government to create a Water Resource Information System (WRIS) project to make GIS databases for water planners of all water and sewer systems in the commonwealth.

Mike Klepper, ESRI and Dan Bozarth, Pennyrile ADD

In January Kentucky's ADDS completed inputting Water System Information for the entire commonwealth. To begin, each ADD selected a representative county from its region, and effective last May the survey of all systems in that county together with the input of GIS data for those respective systems was completed. The ADDs provided information on water lines, sewer lines, water tanks, master meters, pumps, pumping stations, water treatment plants, and wastewater treatment plants. That information should be ready for use by the WRDC in early February.

Kentucky Office of GIS Partner
The Office of GIS, as part of its basic operations is building the Statewide Digital Basemap to which agencies like the KYCED and the ADDs can tie their geographically referenced data. The KYOGIS role is to coordinate and set standards and work closely with both the ADDs and the KYCED to ensure data local level and state level data integration.. KYOGIS also coordinates and provides GIS training for the ADDs as they move into the ESRI computing environment.

Statewide Digital Basemap

Hydrography

By Bruce Bauch, USGS National Mapping Division - Kentucky Liaison

President Clinton established the National Spatial Data Infrastructure (NSDI) by Executive Order 12906, in 1994, as a means to assemble geographic data nationwide. Key components of the NSDI are the Framework of data, procedures and technology for building and using the data, and the institutional relationships and business practices needed to support the Framework.

Kentucky's Statewide Digital Basemap has become a nationally recognized example of implementing the NSDI/Framework at the state level. Included in the Statewide Basemap is the Hydrography data theme, otherwise referred to as the National Hydrography Dataset (NHD). In September 1998, the Kentucky Office of GIS and USGS entered into an agreement to develop statewide revised 1:24,000-scale hydrographic DLG data to be subsequently used to build the state's NHD. This agreement is the first such partnership in the nation to develop statewide coverage of high resolution 1:24K NHD.

So, what is this NHD and why is it different from other hydrographic data? The NHD is a cooperative effort of the U.S. Environmental Protection Agency (USEPA) and the U.S. Geological Survey (USGS). As a feature-based spatial dataset, it combines the best elements of the USEPA Reach File and the USGS digital line graph (DLG) file. The national 100K NHD dataset is produced by merging and conflating the USGS 1:100,000-scale DLG hydrography spatial data with the corresponding USEPA Reach File information. Kentucky's NHD will be built using higher resolution 1:24,000-scale spatial data. Of special note is that like the national 100K dataset, Kentucky's 24K NHD data will be available in watershed or catalog units, rather than the traditional 24K quadrangle or tile extents.

NHD design retains the standard USGS DLG accuracy and cartographic qualities, while incorporating the USEPA Reach File attributes and orientation to GIS applications. Built in a feature-based data model, each "reach" or segment of the NHD has permanent and unique surface water feature identifiers, individual feature names based on the GNIS, navigation attributes including tabular lists of reaches, explicit upstream and downstream relationships, and flow direction.

Distributed in ARC format, the NHD is compatible with many GIS systems, and provides data for modeling, GIS analysis, and cartographic display in addition to enabling the user to add additional tables and information for specific local applications. Put another way, the NHD provides an addressing system for geospatial linkage of water-related information to the nation's surface water drainage network.

As of January, 1999, the first pilot 24K NHD Catalog Unit (Big Sandy CU) is being reviewed and evaluated by the Basemap Hydrographic workgroup. Involvement of the workgroup partners during the early NHD development stages is essential to making this new spatial dataset more valuable and applicable to the end users. In addition to developing the Big Sandy pilot CU, the USGS is assembling the materials to be given to contractors for collection of revised 24K DLG hydro spatial data. The first four 24K NHD Catalog Units, all located in the Kentucky River Basin, will incorporate these initial 24K DLG spatial data. Statewide 24K NHD cover-age is projected to be completed about September, 2000.
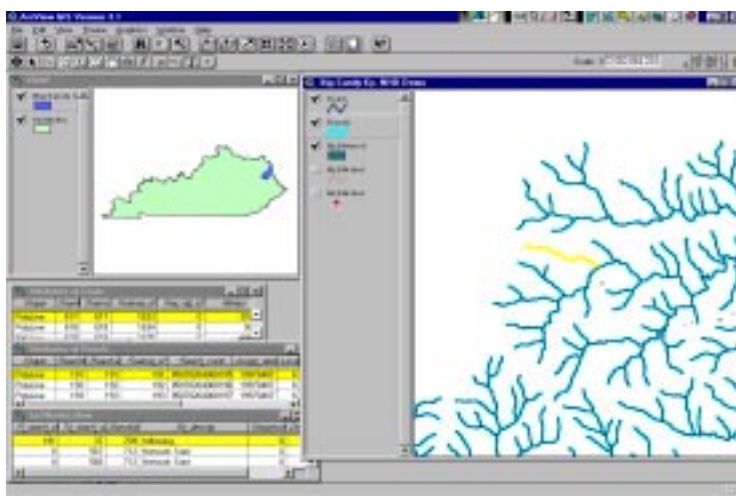
As with any new spatial data program there are inherent growing pains associated with development of the data standards and data management processes. In addition to creating the NHD spatial data, discussions have also included:

1) Need for consistent portrayal of hydro feature density - Existing 24K topo quad maps, some produced in the 1940's, do not have consistent hydro feature portrayal. This is due to changes

2) Need for transactional update layers - During the DLG hydro revision process, feature transaction files containing changed, deleted, and added features will be produced and made available.

3) Defining the longer-term maintenance and distribution issues for the 24K NHD spatial data. Some examples of these issues include database storage and maintenance, NHD feature updates, and NHD distribution format, media and related policies.

The Kentucky statewide 24K NHD program, as the first partnership of its kind, is an example of how the NSDI concepts provide benefits throughout the nation. Kentucky's program is recognized as a progressive and forward-thinking effort, not only for the data, but for the many associated institutional and business relationships that will evolve during the NHD process.

If you would like to be involved with the Hydrography layer of the KY Statewide Digital Basemap please contact Lee Colten, Chair of the Hydrography Technical Workgroup at (502) 564-3410 or by email at: colten@nrdep.nr.state.ky.us

Big Sandy Watershed was chosen for NHD Pilot Study.

Basemap Updates:

Internet Raster Server

We are currently designing an Internet raster image server that is capable of:
- selecting an image by county
- selecting an image from the tiling
- scheme of the uncompressed CDs
- selecting an image from the tiling scheme of the compressed CDs

After selection anyone can do the following:
- view and download a selected reduced resolution image (.gif) of a user selected DOQQ
- view 1 area of the state in a full resolution DOQQ image (so users can see what it looks like)
- fill out an electronic commerce order form for selected uncompressed DOQQ tiles
- enter address information, billing information, and pay for selected uncompressed DOQQ
- fill out an electronic commerce order form for selected compressed DOQQ tiles
·enter address information, billing information, and pay for selected compressed DOQQ tiles

We are currently designing the site with the option certain sectors can download a compressed DOQQ tile

Future plans include the design of a Spatial Date Engine/Oracle database for the Statewide Digital Basemap. If you want to be involved with this, please contact Ted Stumbur at (502) 573-1453 or by email at:
ted.stumbur@mail.state.ky.us

Digital Elevation Model

The Basemap Issues Technical Workgroup has been asked by the GIAC to research and recommend the most feasible method for creating a seamless Digital Elevation Model (DEM) for the Commonwealth. Ken Bates, of the Natural Resources and Environmental Protection Cabinet chairs that group and will be heading up those efforts. He can be reached at (502) 564-5174 or by email at:
batesk@nrepc..nr.state.ky.us

Transportation Street Centerline Pilot

January 13th in Frankfort, a group of Cabinet GIS representatives interested in Geographic Data Technology, Inc.'s **Dynamap 2000** street centerline dataset got together to discuss their individual needs for the data. The group formed into a GDT Pilot team to develop a proposal that will try to pilot making the existing **Dynamap 2000** data match the KY DOQQs. The group also identified several attributes the dataset would need to contain in order to carry out their cabinet's programmatic missions. If you want to participate in this pilot please contact Bill Jones with the KY Transportation Cabinet you can reach him at (502) 564-8900 or by email at:
bjones@mail.kytc.state.ky.us

Events

1999 Kentucky GIS Conference

The Sixth Kentucky GIS Conference is planned for May 2-5 at the Drawbridge Estate in Fort Mitchell, Kentucky. We will have Sunday workshops, technical sessions Monday and Tuesday, and more workshops on Wednesday. If you are a vendor, please don't wait to sign up. Vendor space will be limited this year. The Exhibit Chair is Jeff Miracle, you can contact him at: (502)573-2382 or by email at:
jeff.miracle@mail.state.ky.us

"Put Stevie Ray Vaughn…Eric Clapton…Jimi Hendrix, and Janis Joplin together into one person...and you've got Kelly Richey".

We have engaged the services of the Kelly Richey Band for Monday evening. The conference committee heard her band and she is pretty incredible. You don't want to miss this! For more information about the band see:
http://www.kellyrichey.com

Judging for the poster contest will be Monday evening. So, fire up your plotters and bring something you want to show off. The theme of the conference this year is: **"GIS SERVING KENTUCKY'S COMMUNITIES"**. A conference brochure with a registration form will be coming in the mail shortly.

Announcements

KYOGIS Listserve

We have established a listserve so the KY GIS community can communicate with one another. If you would like to participate please send your SMTP (Internet) email address, such as:

firstname.lastname@mail.state.ky.us to susan.lambert@mail.state.ky.us with the subject, "sign_me_up" . Once you have signed up, any email sent to monkeys@dayglo.state.ky.us will come to you and everyone else on the listserve. However, if you respond to a posting, your message goes only to the person to whom you respond. We ask that you be judicious in your postings, and please...let's keep flaming to a minimum.

Framework Data Survey

We completed the quality assurance of the Framework Data Survey. The survey contained 120 questions. The types of errors ranged from an area development district reportedly covering one county, but showing data for eight, to respondents indicating distributing data while they had previously stated that they were not creating nor would they ever create any. All of those discrepancies were addressed and returned to the NSGIC folks. Kentucky results should be arriving shortly and we will publish them on the KYOGIS Website.

Two Wage and Salary Surveys

We recently received two wage and salary surveys the "URISA Salary Survey for IT/GIS Professionals 1998 which includes 4 job titles. The other document is the "1998

Wage and Salary Survey, a Report Compiled by GeoSearch, Inc. which includes 34 job titles. Both these surveys report the salaries for the job categories by region, and whether the positions are in the public or private sector. The Office of the Commonwealth's Chief Information Officer , the Department for Information Systems, and KYOGIS are working with the Personnel Cabinet to examine the current Geoprocessor series in light of these two recent publications. If you are interested in seeing the documents they are available in the KYOGIS library at 1024 Capital Center Drive, Suite 305, Frankfort, Kentucky.

USGS Landcover

A draft version of the USGS landcover map for Kentucky is available from EROS Data Center. USGS is still performing quality checks on the data. It will be published in final form sometime this summer. One of the goals of the National Component of the Land Cover Characterization Program (LCCP) is completion of the National Land Cover Dataset by 1999. Using the 1992 Multi-resolution Landscape Characterization (MRLC) Landsat Thematic Mapper (TM) source data, the USGS will produce a land cover dataset with the following specifications:

- 30-meter spatial resolution
- Hierarchical land cover legend
- Albers Equal Area projection
- Raster data structure assembled by Standard Federal Regions incorporates data from other federal programs
- Some mapping through private sector contract

Completion of the National Land

Cover Dataset will require close coordination among federal, state, and private sector activities, and represents an excellent opportunity for cooperation in achieving a common goal. While existing coordination committees are being used, the groups may not know about other important land cover mapping projects. The LCCP invites inquiries regarding potential cooperation in building the National Land Cover dataset. You can find information about this dataset at:

http://www-nmd.usgs.gov/mac/isb/pubs/factsheets/fs04897.html If you wish to comment on the Kentucky USGS landcover map please contact:

Nick Van Driel
U.S. Geological Survey
EROS Data Center
Sioux Falls, SD 57198
Telephone: 605-594-6114
Fax: 605-594-6529
E-mail: vandriel@usgs.gov

People

State Government GIS Hires:

Public Service Commission
The Public Service Commission has made a commitment to develop an enterprise-wide GIS system to support its activities concerning the infrastructure of the Commonwealth's communication, electric, gas, water, and sewer network. They have recently hired Ruth Anderson Rowles, PhD to implement their GIS system. She has degrees in geography from Clark University (Worcester, MA), the University of Wisconsin at Madison, and the University of Kentucky. She has held previous GIS positions in the Natural Resources and Environmental Protection Cabinet and the Revenue Cabinet. Most recently, at NREPC, she worked on the Paducah Gaseous Diffusion Plant GIS application and the Kentucky Facilities Index. At the Public Service Commission she will be responsible for the organizational, database, hardware/software, and application development of GIS. The first major project will be the development of a database for natural gas and hazardous liquid pipelines as a participant in the U.S. Department of Transportation's Office of Pipeline Safety's National Pipeline Mapping System.

KY Office of GIS
KYOGIS hired Harry Lee James who was most recently with the Kentucky Department of Emergency Services. Harry has a BS in Liberal Arts from New York Regent's College. At DES he was the Chemical Stockpile Emergency Preparedness Program (CSEPP)

Exercise and Training Officer . His duty was to develop, conduct and evaluate CSEPP specific training for the Division of Emergency Management central office staff and the county officials and emergency response personnel in the nine counties involved in the CSEPP. He coordinated the use of external training resources from FEMA and Department of the Army to enhance the knowledge and capabilities of local emergency responders and work with local jurisdictions to help them develop local training and support plans.

He is a 20-year veteran of the U.S. Army. His primary field in the Army was as a Signals Intelligence and Russian language specialist with the Intelligence and Security Command. He served in a variety of intelligence and translator/interpreter positions throughout the U.S., Europe, Central America and Southwest Asia. His last three years in the Army were spent as a Project Manager at the National Security Agency providing program guidance and fiscal and resource management of joint Army/National Security Agency information and intelligence system projects. His responsibilities included developing computer system technical requirements, computer system manning requirements and system training for user and support personnel. During this tenure he also worked with Oracle database management software and UNIX Systems Administration.

Economic Development Cabinet
 Will Holmes who joined the Economic Development Cabinet comes from Wilbur Smith and Associates (WSA) in Lexington.

Will is an anthropologist with a BA from the University of Alabama and a MA from the University of Kentucky. While with WSA, he was responsible for the management of GIS work in the Lexington office, as well as the design of GIS databases, the performance of spatial analysis and the creation of maps for engineering, planning and socio-economic studies.

In his new position at the Economic Development Cabinet, he is responsible for the technical side of the development of the Kentucky Economic Development Information System (KYEDIS). This is project creates the Kentucky Economic Development Information System (KYEDIS) for supporting economic development in Kentucky by attracting businesses which are expanding or looking for new sites for their operations. As a secondary benefit, this system will foster partners and other entities in the state coordinate and integrate their GIS activities.

Water Resources Development Commission (WRDC)
Kent Anness who was most recently with the Bluegrass Area Development District in Lexington joined the Water Resources Development Commission. Kent is a geographer/cartographer with a BA from the University of Kentucky. While with the Bluegrass ADD he served as the GIS Manager responsible for the supervision and management of a GIS specialist, technicians and interns within the Department. GIS related tasks included the maintenance and utilization of the ADD's GIS (ARC/INFO) on various planning, economic development, tourism, and

human services related projects, designed, published, and maintained the ADD's Internet homepage, managed e-mail and served as the ADD's Novell and Win NT networks administrator.

In his new role as GIS manager for the WRDC within the Kentucky Department for Local Government, he is responsible for the technical aspects of a developing Water Resources Information System (WRIS). The information to be housed in this system is presently being collected by the 15 ADDs through an extensive administered 600+ question survey. The ADDs are then required to input the spatial information using standards set forth by KYOGIS, the Kentucky Information Resources Management Commission (KIRM), and the projects' technical group. The Kentucky Department for Local Government (DLG) and the WRDC are working with the ADDs to ensure that they have the custom spatial data input toolsets developed specifically for the WRIS project.

Education and Training

Training Schedule

Below are the classes we have asked DIS to schedule for us the second, third and fourth quarter of calendar year 1999. The second quarter has been confirmed. The dates for third and fourth quarters are preliminary, as they depend on negotiations with ESRI and other instructors, and classrooms availability at the DIS training center. Check the KYOGIS Web site regularly for updates on the training schedule at: http://ogis.state.ky.us

Date	Class	Duration	Cost	Instructor
2nd Quarter				
April 19	Introduction to GPS	1 day	$150	MapSync
May 24-28	Introduction to Arc/Info	4.5 days	$900	UofL
May 24-25	Introduction to ArcView GIS	2 days	$480	OGIS
June 21-23	Working with ArcView Spatial Analyst	3 days	$710	OGIS
3rd Quarter				
July 12-16	Customizing Arc/Info with AML	5 days	$1320	ESRI
Aug. 2-3	Introduction to Avenue	2 days	$590	Bluegrass GIS
Sep. 13-14	Introduction to ArcView GIS	2 days	$480	OGIS
Sep. 27-29	Advanced ArcView GIS	3 days	$800	ESRI
4th Quarter				
Oct. 18-19	Introduction to ArcView GIS	2 days	$480	OGIS
Nov. 8	Browsing Spatial Data with ArcExplorer	1 day	$240	OGIS
Nov. 15-17	Advanced ArcView GIS	3 days	$800	ESRI
Dec. 6-8	Programming with Avenue	3 days	$800	ESRI

User Groups

Appalachian Mountain User's Group

Shepard McAninch, Mountain Association for Community Economic Development

Now a year old, AMUG-GIS held an organizational meeting in January. We established a charter, elected officers, and worked on our mission Appalachian Kentucky's unique character includes a diffuse population, poor road network, and a strong need for geographic understanding. We, government, educational, business and nonprofit organizations, are coming together because GIS is a tool that functions most effectively when we share knowledge, techniques, data, and ideas.

Susan Lambert of OGIS, attended our recent meeting, and we established a liaison with GIAC. We invite GIAC participation in all activities, and encourage AMUG members join-ing basemap technical workgroups. In our charter we will "establish an educational structure to support the proliferation of GIS in the region." This means that we encourage relationships with all levels of education in the region, elementary to graduate schools. We invite students and teachers to join us, and will visit classes to show the potential of GIS and solicit ideas from the region's students. It is our strong belief that the technology can best serve the region with open and free exchange of ideas, and that the Appalachia's people understand their needs and potentials.

To further the understanding of GIS among our members, individuals will be responsible for keeping the group current in specific fields, from GIS and related journals to work with basemap technical workgroups and other professional organizations.

AMUG's next meeting will be at the 1999 conference at a time to be announced. We will have a room and displays by members. The time and room will be announced in the conference schedule.

For more information, visit our website:

http://www.geography.eku.edu/amug/

EDUCATION
PAYS